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GENERAL INFORMATION ON SCALE INSECTS THAT  
ATTACK SHADE TREES AND HARDY SHRUBS

There are many species of scale insects that infest shade trees and hardy shrubs. Scale insects may be so called for two possible reasons. One reason is that in some cases they are small, abundant, closely attached to the plant, frequently tend to overlap, and usually flake off easily; they thus lend the portion of the plant attacked the appearance of being covered by scales. The other reason is that in the case of many of these insects the actual body of the insect is covered and protected by a secreted scale, plate, or scab. This "scale" may be horny, leathery, waxy, cottony, or mealy, and may also differ in size, color, and shape for each species.

Scale insects feed by sucking juices from the plant attacked, through a slender, hairlike beak which protrudes from the under side of the head. Usually the young scales, or "crawlers", locate on the smooth bark of small branches and twigs, but occasionally they attack leaves. They are also found sometimes on the bark of the trunk and larger limbs of trees, and even on the fruit and roots. They probably are vigorous feeders, for trees attacked by them in abundance usually show decided signs of decadence, and leaves, twigs, branches, and even entire trees may be killed, and frequently are seriously weakened and injured.

Scale insects attack a wide variety of plants. Some species of scales are rather restricted in the number of kinds of plants that they can or will use as hosts, while other species are injurious on quite a variety of different plants.

Locomotion in the scale insects is almost entirely confined to the very young insects. These young scales are minute and generally yellow in color. They crawl about on the plant for a short period after hatching from the egg or leaving the female. Very soon, within a few days, these young scales, or "crawlers", affix themselves in a favorable location and begin to feed. About the only other movement in the life of scale insects occurs when the adult male develops wings and emerges from the scale to fly about seeking a mate. The adult female scale insect remains fixed in the feeding location.

COMBATING SCALE INSECTS

The control of scale insects is rather difficult, owing especially to the protective scalelike covering they frequently develop after the crawling stage. Since they suck juices from the plant when feeding, a contact insecticide is generally used to combat them.

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Dormant oil spray. -- The most frequently applied control measure, and the one that often gives a high degree of success, consists of a dormant-strength oil emulsion or miscible-oil spray. This should be applied thoroughly to the infested parts during the period of the year when the plant is dormant. It is especially effective when used in the early spring just before new growth starts. Oil sprays should not be used where there is danger of freezing shortly after the application. Oil emulsions can be home made but they are difficult to prepare properly. It is therefore advised that standard commercially prepared brands be purchased from reliable local insecticide dealers. These emulsions should be used at the strength recommended by the manufacturer, which is to be found on the label on the package or in accompanying leaflets.

Lime-sulphur spray. - Lime-sulphur sprays at dormant strength also make a good fall, winter, or spring treatment for scale-infested trees or shrubs, but should be avoided near woodwork, as the spray discolors the paint. Lime-sulphur can also be prepared at home but the task is difficult. It is advised that standard commercially prepared brands be purchased from reliable local insecticide dealers and that these be used according to the manufacturer's directions.

Summer oil, nicotine, and soap spray. -- During the growing season a mild miscible oil (or oil emulsion), nicotine sulphate, soap, and water spray will usually give a high percentage of kill of the young scales or "crawlers". To use this method of control effectively, keep a close watch on the infested plant material for the appearance of the crawlers in considerable numbers. When they are abundant, spray the plant thoroughly with the mixture, which is prepared as follows:

- 1/2 pint of a standard brand of oil emulsion or miscible oil
- 1/2 pound of soap flakes
- 4 teaspoonfuls of nicotine sulphate (40 percent nicotine)
- 3 1/4 gallons of water

#### CLEAN CULTURE AND CARE OF PLANTS

Do not buy or plant scale-infested plants about your place. When you find a plant that has been partly destroyed by scales, take out the portion that can be spared and burn it. However, if a shrub is very badly infested, or if the removal of the damaged parts would make the plant unsightly, it is often advisable to take up and burn the entire plant. Keep plants growing well; scale-infested plants or plants that have recently been infested by scale should be given mild fertilization and occasional watering in order to build up their vigor.

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